

Radiopurity of Materials

Material search

Gamma spectrometry measurements:

The first table gives results from Ge Spectrometry, therefore listing the concentrations of the gamma ray emitters.

Errors in between brackets

Material	Type	Provider	Ref.	Measured by	Collaboration	Detector	Units	Uranium series			Th series			
								^{234}Th	^{214}Pb	^{214}Bi	^{228}Ac	^{212}Pb	^{208}Tl	^{235}U
Polyethylen	Plastiques du Rhône	C.Goldbach & G. Nollez		Edelweiss	Gentiane LSM	Bq/kg		0.016 (0.010)		< 0.006		0.07 (0.05)		0.07 (0.05) 0.005 (0.005)
Polyethylen	KOPOS KOLIN (CZECH R	C.Goldbach & G. Nollez		Edelweiss	Gentiane LSM	Bq/kg		0.04 (0.03)				0.4 (0.2) < 0.02	0.15 (0.13)	0.015 (0.015)

Other techniques measurements:

The following table contains data from the [UKDM dark Matter Collaboration](#).

Analysis methods

Conversion factors ppb U, ppb Th, ppm K to Bq/kg

Material	Measured by	Method	^{238}U (ppb)	^{232}Th (ppb)	^{40}K (ppm)	Comments
Polythene (grey, barrel, WACO)	ICI Tracerco	NAA	< 0.3	0.69	2.0	137Cs 80(70) kru, 60Co < 150 kru
Polythene (grey, barrel, WACO)	Harwell (AEA Technology)(Harwell Scientifics after mid-1999)	GES	< 80	< 50	< 1300	U conc. from 214Bi gamma count. Th conc. from 208Tl. Chains assumed in equilibrium (Other lines used to enhance statistics).
Polythene (grey, granules, WACO) 'raw' material for above	Harwell (AEA Technology)(Harwell Scientifics after mid-1999)	GES				137Cs 20(15) kru, 60Co < 40 kru
Polythene (white, barrel, WACO)	ICI Tracerco	NAA	< 7	< 4	1.6	Th sensitivity limited by high Co content
Polythene (white, granules, WACO)	Harwell (AEA Technology)(Harwell Scientifics after mid-1999)	GES	60(40)	270(180)	< 330	U conc. from 214Bi gamma count. Th conc. from 208Tl. Chains assumed in equilibrium

						(Other lines used to enhance statistics).
Polythene (white, pellets, WACO)	Harwell (AEA Technology)(Harwell Scientifics after mid-1999)	GES	< 20	200(130)	< 100	137Cs <30 kru, 60Co <40 kru
Polythene rope (for netting)	J. C. Barton	GES	0(10)	20(30)	4(27)	U conc. from 214Bi gamma count. Th conc. from 208Tl. Chains assumed in equilibrium (Other lines used to enhance statistics).